

the contractor shall include the following information in requests to add subcontractors or consultants during performance, regardless of subcontract type or pricing arrangement:

- (1) Impact on subcontracting goals,
- (2) Impact on providing support at the contracted value,
- (3) IF SEAPORT TASK ORDER - The results of negotiations to incorporate fee rate caps no higher than the lower of (i) SeaPort-e fee rate caps for the prime contractor, or in the case where the proposed subcontractor is also a SeaPort-e prime, (ii) fee rate caps that are no higher than the subcontractor's prime SeaPort-e contract.

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PERFORMANCE WORK STATEMENT (PWS)

1. Scope.

This PWS defines the scope of work for engineering support required across five departments of the Naval Undersea Warfare Center (NUWC) Division, Keyport. NUWC Division, Keyport requires engineering support services for work occurring in the Corporate Operations Department (Code 10); Test and Evaluation Department (Code 20); Maintenance, Engineering, and Industrial Operations Department (Code 30); In-Service Engineering Department (Code 40), and Corporate Resources Planning and Customer Advocacy Department (Code 70). This work includes facilities support; test, training, and evaluation (TT&E) of undersea warfare (USW) systems and operational readiness assessment support; repair services for mechanical, electro-mechanical, and electronics systems, assemblies, and components; engineering, production, and test services required to establish a cost-effective and timely source of supply for systems, assemblies, technical data, and components of varying complexity and life-cycle support of combat and weapon systems.

1.1 Background.

1.1.1 Facilities Branch (Code 1021).

The Facilities Branch (Facilities) performs engineering, project management, and construction support services to ensure aging facilities and infrastructure remain capable of supporting current, new, and expanding missions at NUWC Division, Keyport and its dispersed detachments. Facilities is responsible for workload planning and project development to include concept development, project planning, engineered designs, contract scope development, estimating and budgeting, acquisition, construction, and closeout of a facilities and infrastructure project. The Facilities branch is responsible for managing development of project scope, engineering and design, acquisition, and construction and installation. Facilities ensures compliance with security, safety and environmental requirements, fire regulations, mechanical and electrical codes, the Americans with Disabilities Act, and other laws, regulations, directives, Executive orders, and requirements of local and federal governing agencies.

1.1.2 Test and Evaluation Department (Code 20).

The Test and Evaluation Department plans, organizes, directs, and controls NUWC Division, Keyport's TT&E of USW systems and operational readiness assessment support for acquisition and Fleet customers. Code 20 conducts system evaluation activities throughout all phases of the acquisition life cycle including technology development; system design, development, and production; and in-service readiness assessment.

In performance of test and evaluation, Code 20 plans and executes test programs; provides test environments that closely approximate war-fighting environments; provides methods for measuring system performance in those environments; and, conducts performance analysis and evaluation of such systems. The department also provides TT&E leadership for NUWC Division, Keyport; provides test and evaluation (T&E) planning, operation, and analytical support independently as Trusted Agent directly to Commander Operational Test and Evaluation Force (COMOPTEVFOR); and, similarly supports other T&E activities requiring independent technical assessment.

Code 20 serves as the T&E and readiness assessment agent for all USW systems assigned to NUWC Division,

Keyport. The department also operates, manages, and controls the Pacific Northwest Range and other readiness test and assessment facilities in the Pacific. Code 20 supports analysis and assessment, Fleet material readiness, signatures and susceptibility, and other product areas.

Code 20 engineering support functions include:

- Production acceptance
- Design and conduct acoustic/vibration testing
- Failure analysis
- Reliability and environmental test technologies
- Maintenance and repair of components and unmanned undersea vehicles (UUVs)
- Evaluate system response relative to the real, approximated, and synthetic environments and required performance
- Perform TT&E data processing
- Operational testing
- Information technologies
- Software development
- Pacific Northwest range technologies

1.1.3 Maintenance, Engineering, and Industrial Operations Department (Code 30).

1.1.3.1 Undersea and Combat Systems Depot (UCSD) (Code 31).

The UCSD provides repair services for mechanical, electro-mechanical, and electronics systems, assemblies, and components. The UCSD provides a continuum of expert level skills including evaluating electronic, mechanical, and electro-mechanical components for feasibility of repair, repair of items to customer specifications, reverse engineering, maintenance planning and engineering, obsolescence management, and application of new maintenance technologies. The Depot exists to ensure continuity of support, often as the last resort source of repair for items that are abandoned by industry for business or technological reasons. Examples include when items are past their technology lifecycle, or as an alternative supplier in cases of critical need.

The Naval Supply Systems Command (NAVSUP) and the Joint Undersea Weapons Program Office (PMS404) are the Depot's primary customers. Tasking from NAVSUP has no specific alignment and can come from any program or system within the Navy. Tasking includes recurring efforts to ensure adequate supply is maintained, as well as non-recurring efforts to establish or re-establish a repair depot for a given system, assembly, or component. PMS404 efforts are aligned toward providing support for U.S. Navy and Foreign Military Sales (FMS) torpedo enterprise requirements.

Mechanical repairs include a range of requirements from metal repair and refinishing, pump and valve refurbishment, mechanical assembly repair and testing, and electro-mechanical assembly repair and testing. Electrical repair processes include analog and digital repair, power supplies, and displays. Often repairs are completed on assemblies that are a hybrid of electronic controls and mechanical systems. The Depot has a complete spectrum of test equipment and technologies spanning bench level diagnostic tools, custom built test suites, and commercial automated test stations.

The Depot employs highly skilled engineers with knowledge of standard engineering practices and military standards to oversee the development and execution of repair processes that tie back to specific system requirements. The Depot develops test plans, processes, and procedures based on systems requirements with the goal of establishing a durable source of repair. Each repair process contains a technical documentation package (TDP) which, along with a highly developed quality management system, ensures consistent and repeatable repairs.

Components repaired at the UCSD include:

- Acoustic arrays
- Analog and digital circuit cards and assemblies
- Power supply assemblies
- Cables

- Ordnance and explosives
- Ground support equipment
- Communication equipment
- Pneumatic and hydraulic valves
- Pumps
- Metallic shell assemblies

1.1.3.2 Rapid Prototyping and Fabrication Technology Division (Code 32).

The Rapid Prototyping and Fabrication Technology Division provides engineering, production, and test services required to establish a cost effective and timely source of supply for systems, assemblies, technical data, and components of varying complexity. Code 32 also provides mitigation against obsolescence by establishing a source of supply, maintaining an organic manufacturing capability, and providing technical expertise and leadership. Leading edge technological advancement in areas related to rapid prototyping, fabrication, and custom engineered solutions (CES) are also a specialty of Code 32. Code 32's CES capability was created to meet the Fleet's emergent supportability requirements.

Military systems are typically fielded in relatively low quantities and expected to last an extended period of time with intended life cycles of several decades or more. After years of use, yet long before the end of the desired life cycle, many of these systems, subassemblies, and/or components cease to be supported by logistic and design support from the original equipment manufacturer. Caught between the Fleet demanding spare parts and industry having moved on to new technology or determining the Government's low volume requirements to be cost ineffective, the Naval supply system relies on the organic reverse engineering, design, manufacturing, and repair capabilities of NUWC Division, Keyport's CES group to obtain components and assemblies necessary to support Fleet systems.

Typically, CES cases have similar origins due to a lack of condition code 'A' (serviceable) items in the stock system. This can be further complicated if the Navy does not have the technical data rights to the hardware, the TDPs are inadequate, or obsolescence issues make new procurements impossible. The CES group is then asked to analyze the problem, develop a formal quote, and, if funded, provide a solution.

Often the solution will include reverse engineering the legacy asset and either copying it or creating a new design (re-design) that is a form, fit, and function equivalent replacement for the original (meeting long term supportability and obsolescence management requirements). Code 32 develops the design from prototype to initial production, through qualification testing, and into full production at whatever quantity meets the client's immediate need. CES projects include a variety of engineering design and production tasks that encompass efforts to analyze the available TDP and any required available specifications or hardware/software, brainstorm conceptual designs, analyze alternatives/select concept, and develop prototype electronics/mechanical assemblies and software (varying degrees of effort dependent upon end deliverables). The NUWC Division, Keyport Obsolescence Management Information System team reviews a bill of materials (BOM) to ensure obsolescence is not designed into the new product. Other efforts include prototype TDP procurement/fabrication, development of prototype software, assembly/test of prototypes, and validation by a preliminary design review (PDR) and critical design review (CDR), the manufacture of pre-production units, test of pre-production units (environmental, functional, relevant environment), performance of production readiness reviews (PRR), production of first article(s), and finally, a production run.

The result of the process is a supply system with a combination of A-condition stock, a source of supply, a TDP to support resupply, and a repair and test procedure should the item return to the Depot for repairs.

Code 32 supports the warfighter by providing research, reverse engineering, design, fabrication, test, and validation capabilities for electronic, mechanical, and electro-mechanical devices. All efforts are in support of Department of the Navy (DON), Department of Defense (DOD), other US Government agencies, and FMS. Services include, but are not limited to, the following areas:

- CES to emergent source of supply issues
- Flexible prototyping, fabrication, test, and evaluation and technology insertion capabilities to mitigate obsolescence and increase reliability
- Reverse engineering of electronic, mechanical, and electro-mechanical assemblies to develop TDPs that

can be utilized to reinitiate assembly fabrication, manufacture, test, and repair to meet the warfighter's supply support requirements

- Rate sensor/gyro systems design/fabrication manufacture/test
- Rapid prototyping/3-D printing
- Circuit board reverse engineering/fabrication/test
- Cable reverse engineering/design/manufacture/testing
- Composite manufacture/repair/test
- Laser cladding/stripping/additive metals repair/manufacture/test
- Advanced coatings/corrosion coating capability/plasma coating
- Advanced machining/industrial capability
- Metal finishing/hydrostatic testing/painting
- Applied technology solutions

1.1.3.3 Heavyweight/Lightweight Torpedo Division (Code 33).

The Heavyweight and Lightweight Torpedo Division performs intermediate level maintenance of the Heavyweight (HWT) and Lightweight (LWT) family of U.S. torpedoes. LWT products include MK 46 and MK 54 torpedoes. LWT torpedoes can be equipped with launch accessories or assembled as an Anti-Submarine Rocket (ASROC). HWT products include MK 48 MOD 4 and 4M and MTV/XTV (Mobile Target Vehicle/External Target Vehicle) torpedoes and MK 48 MOD 6 Advanced Common Torpedo (ACOT), and MOD 7 torpedoes. The Intermediate Maintenance Activity (IMA) also produces torpedo umbilical (A-Cables) and Torpedo Mounted Dispensers for the HWT torpedo.

Code 33 maintenance activities include handling, disassembly, cleaning, inspection, testing, modification, retrofitting, cosmetic repair and restoration, packaging, and preservation.

The IMA employs technicians, planners, logisticians, quality specialists, engineers, and supervisory and administrative personnel to achieve mission requirements. The further achievement of strategic goals and introduction of emerging technologies necessitates improvement of facilities layout and work design, generating the requirement for professional industrial engineering and engineering-informed training development services.

1.1.4 In-Service Engineering Department (Code 40).

The In-Service Engineering Department plans, organizes, directs and controls NUWC Division, Keyport's efforts to ensure Fleet operational readiness through life-cycle support of combat and weapon systems. Code 40 provides In-Service Engineering Agent (ISEA) and other technical authority functions as assigned, including design, production, test, fielding, sustainment, and improvement modifications. Capabilities include systems engineering, Fleet technical support, lifecycle logistics, obsolescence management, and acquisition engineering support. Program responsibilities include submarine systems, Naval training systems, undersea warfare weapons and vehicles, and surface warfare systems. Products and services include commercial-off-the-shelf (COTS) integration and supportability, software development, technology refreshment, obsolescence management, advanced training systems, distance support, logistics support, direct waterfront support, information assurance (IA)/cyber security, and information systems. Code 40 also provides systems and project engineering leadership for assigned integrated warfare systems technical programs and project team leadership on traditional and non-traditional work assignments, including technology insertion of aircraft carrier and surface combat systems and air and surface ship acoustic sensors, standard equipment, COTS hardware and software, and supply agent projects.

Typical system assignments include shipboard non-tactical application systems, Fleet distance support applications, and integrated training systems that incorporate advanced learning and performance support technologies. Program assignments include services and support related to software development, network engineering, obsolescence, and IA. Code 40 promotes the development and implementation of advanced technical data and training tools based on interactive and virtual technologies, enterprise solutions to Fleet requirements, and human systems integration/human performance engineering best practices across organizational disciplines through leadership and team member assignments.

The In-Service Engineering Department also provides ISEA support for anti-submarine and USW weapons and mines for U.S. Fleet and FMS customers. Systems include ASROC and Vertical Launch ASROC (VLA); Surface Ship Torpedo Defense/Anti-Torpedo Torpedo; Long-Term Mine Reconnaissance System; MK 46, MK 50, MK 54,

MK 48, and ADCAP torpedoes; various mine systems; MK 30 targets; and other systems as assigned. The department provides full spectrum life-cycle support and provides historical knowledge and expert technical perspective on effective and efficient systems failure analysis and problem resolution.

Code 40 exercises in-service agent technical authority for assigned systems through rigorous and disciplined application and direction of:

- Systems engineering design interface
- Performance and reliability, maintainability, and availability analysis
- Configuration control and management
- Maintenance engineering, planning, and management
- Test support
- Environmental and safety engineering
- Test and support equipment
- Facilities, demilitarization (DEMIL)/disposal
- Integrated logistics support
- Supply support
- Technical documentation/data
- Training and manning
- Computer resources support
- Packaging, handling, shipping, and transportation

1.1.5 Corporate Resources Planning and Customer Advocacy Department (Code 70).

The Corporate Resources Planning and Customer Advocacy Department is responsible for customer program planning, customer tasking execution performance, and customer satisfaction. NUWC Division, Keyport remains engaged with all customers at many levels to ensure customer satisfaction. Each Customer Advocate (CA) has identified stakeholders and maintains regular direct and electronic contact. Customers periodically visit and engage with the entire product team, including CA, Technical Project Managers, Project Leads, and Line Management. Additionally, NUWC Division, Keyport participates in the biennial Warfare Center Customer Survey to solicit formal feedback and respond to concerns.

2. Applicable Documents. Most applicable Government and non-Government documents can be found via online search or through the Acquisition Streamlining and Standardization Information System (commonly known as ASSIST) QuickSearch database at <https://quicksearch.dla.mil/qsSearch.aspx>. NUWC Division, Keyport directives and other documents not available online will be provided by the Contracting Officer or Contracting Officer's Representative (COR). In all cases, the Contractor shall use the most current version of the applicable document.

2.1 Government Documents.

Table 2-1. Government Documents.

Document Number	Title
29 CFR 1910	General Industry Standards
29 CFR 1915	Maritime Standards
29 CFR 1926	Construction Standards
48 CFR 52.228-5	Insurance -- Work on a Government Installation
48 CFR 52.228-7	Insurance -- Liability to Third Persons
DOD 5220.22-M	National Industrial Security Program Operating Manual
DODM 5200.01, Volume 1	DoD Information Security Program: Overview, Classification, and Declassification
DODM 5200.01, Volume 2	DoD Information Security Program: Marking of Information
DODM 5200.01, Volume 3	DoD Information Security Program: Protection of Classified Information
DODM 5200.01, Volume 4	DoD Information Security Program: Controlled Unclassified Information (CUI)
EM385-1-1	Safety and Health Requirements
ISO 14000	Environmental Management
NAVSEAINST 5510.1C	Naval Sea Systems Command Security Program Instruction

NUWCDIVKPT 4100.2	Energy Conservation
NUWCDIVKPT 5090.1	Environmental Program Policy and Manual
NUWCDIVKPT 5090.3	Hazardous Material Control and Management Procedures
NUWCDIVKPT 5090.4	Pollution Prevention and Hazardous Waste Minimization
NUWCDIVKPT 5090.11	Hazardous Waste Management Plan/Procedures
NUWCDIVKPT 5100 Series	Occupational Safety and Health
NUWCDIVKPT 5239.1E	Cybersecurity Program
NUWCDIVKPT 5510.1	Information Security Program
NUWCDIVKPT 5510.2	Personnel Security
NUWCDIVKPT 5530.1	Physical Security
OPNAVINST 5090.1E	Environmental Readiness Program
Public Law 91-596	Occupational Safety and Health Act
SECNAVINST 5510.30C	Department of the Navy Personnel Security Program
SECNAVINST 5510.36B	Department of the Navy Information Security Program
UFGS-01 35 26	Unified Facilities Guide Specification
WAC-296-24	Safety Standards for General Safety and Health Standards

2.2 Non-Government Documents.

Table 2-2. Non-Government Documents.

Document Number	Title
ASTM F2413	Performance Requirements for Protective (Safety) Toe Cap Footwear

3. Requirements.

3.1 Description of Services.

All of the services in this section will be performed by Contractor personnel as part of a Government/Contractor Engineering Services Support team. The technical direction of products; prioritization of work efforts; and design, functionality, and systems engineering decisions are inherently governmental functions and will be made by Government personnel.

3.1.1 Contractor Personnel.

The Contractor shall provide necessary personnel to accomplish all work and services within Government specified timeframes. The Contractor shall provide personnel with qualifications, necessary licenses, certifications, training, experience levels, and security clearances that are required, including those by federal, state, and local laws and regulations. Minimum requirements are identified in Table 3-1. The Contractor shall ensure that all work meets performance objectives, standards, or tolerances specified in applicable documents. Work must be performed within time limits specified by the Government. Contractor employees must have the ability to effectively communicate (both verbally and in writing) to all applicable parties. Contractor employees assigned to these tasks will need tact and diplomacy to effectively work with civilian and military personnel.

3.1.2 Contractor Employee Development.

Although the Government is not responsible for developing private Contractor employees, in the event of a requirement for a one-time training event or a training requirement specific to the Government that cannot be obtained commercially, the Contracting Officer will approve Contractor training attendance by issuing a technical instruction (TI) letter to the Contractor.

3.1.3 Labor Categories.

The required labor categories, along with the technical education, experience, and background qualifications desired for each labor category, are identified in Table 3-1. If an Offeror does not identify the labor categories

listed below by the same specific title in its proposal, then the Offeror shall provide a cross reference that lists the applicable labor category designations that correspond to the categories identified below, and identify any substantive differences. Bureau of Labor Statistics (BLS) Standard Occupational Classification (SOC) position equivalents and pay ranges for the Seattle-Tacoma-Bellevue metropolitan area dated May 2018 and the 2019 Seattle-Tacoma-Bellevue locality pay rates for the General Schedule are referenced for informational purposes.

3.1.4 Contractor Personnel Assignment.

Contractor personnel shall be assigned to task order efforts in a manner that will maximize productivity and efficiency.

3.1.5 Staffing Responsiveness.

Contractor employees shall be staffed within the timeframe agreed to by the COR/Contracting Officer, and Contractor PM. Positions filled in under 30 days will be considered exceptionally responsive; positions filled within 30-45 days will be considered very good responsiveness; positions filled within 45-60 days will be considered satisfactorily responsive; positions filled within 60-90 days will be considered marginally responsive; and, positions that require more than 90 days to fill will be considered unsatisfactorily responsive.

Table 3-1. Labor Categories, Training, Education and Experience Qualifications.

<p>Program Manager</p> <p>A minimum of five years of experience in building and managing engineering teams using technologies and skill categories listed in paragraphs 3.2.1 through 3.2.49.</p> <p>Closest BLS SOC: 11-1021, General and Operations Managers</p> <p>Annual Pay Range: \$208,000 (90th Percentile Annual Wage)</p>
<p>Electrical/Electronics (Senior) Engineering</p> <p>A bachelor of science degree in electrical/electronics engineering, or higher. A professional license may also be necessary, depending on the nature of the work (e.g., heating, ventilation, and air conditioning (HVAC) or structural engineering). A minimum of seven years of experience in electrical engineering for complex systems including design, development, integration, test, and deployment. Experience using LabVIEW, MATLAB, programming/scripting, and T&E analysis. Experience in circuit design (analog and digital), power, fixturing, test equipment, and test program set (TPS) development. A master of science degree in an appropriate field may substitute for two years of experience.</p> <p>Closest BLS SOC: 17-2071, Electrical Engineers</p> <p>Annual Pay Range: \$153,240 (90th Percentile Annual Wage)</p>
<p>Electrical/Electronics (Journeyman) Engineering</p> <p>A bachelor of science degree in electrical/electronics engineering, or higher. A professional license may also be necessary, depending on the nature of the work (e.g., HVAC or structural engineering). A minimum of four years of experience in electrical engineering for complex systems including design, development, integration, test, and deployment. Experience using LabVIEW, MATLAB, programming/scripting, and T&E analysis. Experience in circuit design (analog and digital), power, fixturing, test equipment, and TPS development. A master of science degree in an appropriate field may substitute for two years of experience.</p> <p>Closest BLS SOC: 17-2071, Electrical Engineers</p> <p>Annual Pay Range: \$96,640 - \$123,160 (50th - 75th Percentile Annual Wage)</p>

Electrical Engineering (Entry)

A bachelor of science degree in electrical/electronics engineering from an accredited college or university.

Closest BLS SOC: 17-2071, Electrical Engineers

Annual Pay Range: \$75,430 - \$96,640 (25th - 50th Percentile Annual Wage)

Facilities Engineer (Senior)

A bachelor of science or higher degree in an engineering discipline such as architecture, civil engineering, industrial engineering, structural engineering, mechanical engineering, manufacturing engineering, environmental engineering or other area related to facilities engineering. A professional license may also be necessary, depending on the nature of the work (e.g., HVAC or structural engineering). Seven years of experience. Completion of coursework or experience in planning, designing, developing, and maintaining facilities that includes multiple structures, power plants, roads, sewage systems, and HVAC systems. Ability to define requirements, estimate cost of labor, materials and equipment, and evaluate bids and proposals. Have a thorough understanding of construction means and methods to support the development of project scopes and cost estimates.

Closest BLS SOC: 17-2051, Civil Engineers

Annual Pay Range: \$142,560 (90th Percentile Annual Wage)

Facilities Engineer (Journeyman)

A bachelor of science or higher degree in an engineering discipline such as architecture, civil engineering, industrial engineering, structural engineering, mechanical engineering, manufacturing engineering, environmental engineering or other area related to facilities engineering. A professional license may also be necessary, depending on the nature of the work (e.g., HVAC or structural engineering). Four years of experience. Completion of coursework or experience in planning, designing, developing, and maintaining facilities that includes multiple structures, power plants, roads, sewage systems, and HVAC systems. Ability to define requirements, estimate cost of labor, materials and equipment, and evaluate bids and proposals. Have a thorough understanding of construction means and methods to support the development of project scopes and cost estimates.

Closest BLS SOC: 17-2051, Civil Engineers

Annual Pay Range: \$86,640 - \$112,850 (50th - 75th Percentile Annual Wage)

Industrial Engineer (Senior)

A bachelor of science or higher degree in industrial engineering or an engineering discipline such as mechanical engineering, electrical engineering, manufacturing engineering, or general engineering with an emphasis in industrial engineering. Seven years of experience. Able to design, develop, test, and evaluate integrated systems for managing industrial production processes, including human work factors, quality control, inventory control, logistics and material flow, cost analysis, and production coordination to improve the quality and productivity of systems.

Closest BLS SOC: 17-2112, Industrial Engineers

Annual Pay Range: \$132,340 (90th Percentile Annual Wage)

Industrial Engineer (Journeyman)

A bachelor of science or higher degree in industrial engineering or an engineering discipline such as mechanical engineering, electrical engineering, manufacturing engineering, or general engineering with an emphasis in

industrial engineering. Four years of experience. Able to design, develop, test, and evaluate integrated systems for managing industrial production processes, including human work factors, quality control, inventory control, logistics and material flow, cost analysis, and production coordination to improve the quality and productivity of systems.

Closest BLS SOC: 17-2112, Industrial Engineers

Pay Range: \$87,040 - \$108,560 (50th - 75th Percentile Annual Wage)

Mechanical Engineering (Senior)

A bachelor of science degree in mechanical engineering or higher. A professional license may also be necessary, depending on the nature of the work (e.g., HVAC or structural engineering). A minimum of seven years of experience in mechanical engineering for complex systems, including design, development, integration, and test. Experience in mechanical engineering development standards and techniques including geometric dimensioning and tolerancing (GD&T). Experience with electro-mechanical components/systems, configuration management, and computer aided design (CAD) systems. For example, experience with Solid Edge/Solid Works, or equivalent, risk identification and mitigation, MATLAB, LabVIEW, T&E analysis, electronics packaging design, and tooling and fixturing design. A master of science degree in an appropriate field may be substituted for two years of experience.

Closest BLS SOC: 17-2141, Mechanical Engineers

Annual Pay Range: \$136,550 (90th Percentile Annual Wage)

Mechanical Engineering (Journeyman)

A bachelor of science degree in mechanical engineering, or higher. A minimum of four years of experience in mechanical engineering for complex systems, including design, development, integration, and test. A professional license may also be necessary, depending on the nature of the work (e.g., HVAC or structural engineering). Experience in mechanical engineering development standards and techniques including GD&T. Experience with electro-mechanical components/systems, configuration management, and CAD systems. For example, experience with Solid Edge/Solid Works, or equivalent, risk identification and mitigation, MATLAB, LabVIEW, T&E analysis, electronics packaging design, and tooling and fixturing design. A master of science degree in an appropriate field may be substituted for two years of experience.

Closest BLS SOC: 17-2141, Mechanical Engineers

Annual Pay Range: \$87,370 - \$110,520 (50th - 75th Percentile Annual Wage)

Mechanical Engineering (Entry)

A bachelor of science degree in mechanical engineering from an accredited college or university.

Closest BLS SOC: 17-2141, Mechanical Engineers

Annual Pay Range: \$69,410 - \$87,370 (25th - 50th Percentile Annual Wage)

Metallurgical Engineering (Senior)

A bachelor of science degree in material science engineering, or equivalent. A professional license may also be necessary, depending on the nature of the work (e.g., HVAC or structural engineering). A minimum of seven years of experience in failure analysis with metal failure and material conditions. Experience in material science, engineering development, standards, and techniques. A master of science degree in an appropriate field may be substituted for two years of experience.

Closest BLS SOC: 17-2141, Mechanical Engineers

Annual Pay Range: \$136,550 (90th Percentile Annual Wage)

Operations Research Analyst (Senior)

A bachelor of science or higher degree in a science discipline of mathematics, electronics engineering, environmental engineering, computer engineering, physics, or industrial engineering is desired. A professional license may also be necessary, depending on the nature of the work (e.g., HVAC or structural engineering). Seven or more years of experience in five of the following seven areas of engineering science or physics: (a) statics, dynamics; (b) strength of materials (stress-strain relationships); (c) fluid mechanics, hydraulics; (d) thermodynamics; (e) electrical fields and circuits; (f) nature and properties of materials (relating particle and aggregate structure to properties); and (g) any other comparable area of fundamental engineering science or physics, such as optics, heat transfer, soil mechanics, or electronics. A master of science degree in an appropriate field may be substituted for two years of experience.

Closest BLS SOC: 15-2031, Operations Research Analysts

Annual Pay Range: \$136,250 (90th Percentile Annual Wage)

Operations Research Analyst (Journeyman)

A bachelor of science or higher degree in a science discipline of mathematics, electronics engineering, environmental engineering, computer engineering mathematician, physics, or industrial engineering is desired. A professional license may also be necessary, depending on the nature of the work (e.g., HVAC or structural engineering). Four or more years of experience in five of the following seven areas of engineering science or physics: (a) statics, dynamics; (b) strength of materials (stress-strain relationships); (c) fluid mechanics, hydraulics; (d) thermodynamics; (e) electrical fields and circuits; (f) nature and properties of materials (relating particle and aggregate structure to properties); and (g) any other comparable area of fundamental engineering science or physics, such as optics, heat transfer, soil mechanics, or electronics. A master of science degree in an appropriate field may be substituted for two years of experience.

Closest BLS SOC: 15-2031, Operations Research Analysts

Annual Pay Range: \$83,390 - \$109,670 (50th - 75th Percentile Annual Wage)

Systems Engineer (Senior)

A bachelor of science or higher degree in an engineering discipline such as electrical engineering, electronics engineering, mechanical engineering, computer engineering, or industrial engineering. A stand-alone certification may be substituted for a bachelor of science or higher degree in an engineering discipline. A professional license may also be necessary, depending on the nature of the work (e.g., HVAC or structural engineering). Seven or more years of experience in conducting systems engineering and leading technical teams throughout the engineering lifecycle with activities including technical planning, system integration, verification and validation, cost and risk assessment, and supportability and effectiveness analysis for total systems. A master of science degree in an appropriate field may be substituted for two years of experience.

Closest BLS SOC: 17-2071, Electrical Engineers

Annual Pay Range: \$153,240 (90th Percentile Annual Wage)

Systems Engineer (Journeyman)

A bachelor of science or higher degree in an engineering discipline such as electrical engineering, electronics engineering, mechanical engineering, computer engineering, or industrial engineering. A stand-alone certification may be substituted for a bachelor of science or higher degree in an engineering discipline. A professional license may also be necessary, depending on the nature of the work (e.g., HVAC or structural engineering). Four or more years of experience in conducting systems engineering and leading technical teams throughout the engineering

lifecycle with activities including technical planning, system integration, verification and validation, cost and risk assessment, and supportability and effectiveness analysis for total systems. A master of science degree in an appropriate field may be substituted for two years of experience.

Closest BLS SOC: 17-2071, Electrical Engineers

Annual Pay Range: \$96,640 - \$123,160 (50th - 75th Percentile Annual Wage)

3.2 Specific Tasks.

Basis of Estimate (BOE) is provided for each task in paragraphs 3.2.1 through 3.2.49. BOE quantities are based on a one-year Period of Performance (POP) and remain the same for the base year through each of the four (4) Option Years. Management and supervision of Contractor work efforts and deliverables are the responsibility of the Contractor and, except for the Program Manager, are not reflected in the tasks defined below.

3.2.1 General Senior and Journeyman Level Mechanical and Electrical Engineering.

Design and/or modify components and/or complex systems. Design solutions from top level requirements, converting requirements into design specifications. Perform feasibility analysis on technologies and tradeoffs while considering design constraints, integration, compatibility, and implementation of technologies.

BOE: For estimating purposes, these general engineering tasks are performed in conjunction with specific tasking in paragraphs 3.2.3 through 3.2.49.

3.2.2 General Entry Level Mechanical and Electrical Engineering.

Recognize engineering issues and develop possible solutions to non-routine problems. Perform project work focusing on hands-on involvement in designing, ordering parts, modifying, assembling, and testing prototype or production parts/systems, machines, processes, and equipment. Performing non-complex detailed engineering drafting and design work using CAD systems.

BOE: For estimating purposes, these general engineering tasks are performed in conjunction with specific tasking in paragraphs 3.2.3 through 3.2.49. Entry level engineers will be given projects to work on as they demonstrate their capabilities to senior level engineers.

3.2.3 Acoustics.

Provide expert level guidance in the application of land-based and in-water acoustics testing and test and measurement sciences (e.g. digital signal processing, acoustic analysis, acoustic communications, transducer technology) to project leads and/or systems engineers. Work with project leads and/or systems engineers to ensure appropriate specifications are developed, and testing is performed in accordance with the current best practices to support acquisition program development, research and development, and production. Develop and maintain state-of-the-art knowledge and understanding of underwater acoustic testing technology (e.g. transducer technology, acoustics communications, and acoustic test and measurement) and functional testing technology. Utilize state-of-the-art acoustic measurement and analysis techniques, tools, and test sets to analyze test requirements to support performance assessments of systems under test.

BOE: For estimating purposes, assume five (5) acoustics efforts.

3.2.4 Acquisition Support.

Perform market research for the procurement of parts, systems, and sub-systems required to complete an engineering project. Provide acquisition documentation and support. This includes development of statements of work (SOWs), PWSs, Contract Data Requirements Lists (CDRLs), and other acquisition documentation required to facilitate a successful procurement.

BOE: For estimating purposes, assume group preparation of one major system acquisition package including

SOW or PWS, 15 CDRLs, 10 acquisition package attachments consisting of Excel and Word formatted supporting data, and 12 acquisition support documents consisting of one or more of the following: Test and Evaluation Master Plan (TEMP), acquisition plan (AP), Systems Engineering Plan (SEP), Capability Development Document (CDD), Capability Production Document (CPD), Producibility Engineering Plan (PEP).

3.2.5 Analysis of LWT and HWT Torpedoes.

Design, develop, document, enhance, test, support, train, and provide technical input for data insight and analysis of LWT and HWT torpedoes. Provide analysis surge support and subject matter expertise for torpedo component/systems. Support database and reporting development and management. Perform statistical analysis. Perform digital signal processing. Prepare operational systems final test reports.

BOE: For estimating purposes, assume twenty-seven (27) system test data analysis reports, twelve (12) database reports, twenty-four (24) database maintenance efforts, thirty-six (36) torpedo data analysis reports, five (5) analysis toolset maintenance efforts, five (5) data insight training instruction efforts, twelve (12) data insight tool maintenance efforts, six (6) data insight tool development/modification efforts, twelve (12) metric/trend analyses, four (4) digital signal processing efforts, four (4) operational systems test final reports, and six (6) end-to-end testing analyses.

3.2.6 Cable Fabrication.

Design, build, and repair different types of electronic cables, including underwater cables and design and test cables. Use a Government-owned DIT-MCO cable analyzer, molding and vulcanizing equipment, and test for continuity, insulation resistance, and dielectric breakdown.

BOE: For estimating purposes, assume ten (10) cable fabrication efforts.

3.2.7 Circuit Board Layout.

Use CAD software to translate electrical design schematics/requirements into printed circuit board (PCB) artwork from designs/layouts that range from simple two-layer boards to very complex, multi-layer, fine-pitch PCBs.

BOE: For estimating purposes, assume twenty (20) circuit board layout efforts.

3.2.8 Circuit Troubleshooting/T&E.

Interpret specifications, datasheets, and schematics to learn a component/system operation. Develop test plans and procedures to confirm functionality. Identify design flaws/defects.

BOE: For estimating purposes, assume ten (10) circuit troubleshooting/T&E efforts.

3.2.9 Communications Systems.

Develop/modify OHIO, VIRGINIA, and COLUMBIA class submarine communications systems, including designing a subset of command communications links. Redesign shipboard amplified announcing systems.

BOE: For estimating purposes, assume three (3) major subsystems redesign efforts.

3.2.10 Component Support.

The Contractor shall respond to shop floor requests for component support within two (2) hours. Upon evaluation, the Contractor is required to provide a written report to document the problem and the proposed course of action to resolve the issue. In the event that the engineer is required to determine disposition of a component or material, the engineer shall provide a recommendation to the lead Government engineer in the work area. If the component requires disposition for a failure mode, the Contractor shall conduct failure analysis and provide a report. If the recommendation is to develop a repair instruction, change a procedure, or develop a procedure, with concurrence from the lead Government engineer, the Contractor shall develop the required draft documentation to be submitted to the lead Government engineer for approval. If during the response, the Contractor realizes there is a safety or

quality concern, the Contractor shall immediately report the issue to the lead Government engineer of the work area.

BOE: For estimating purposes, assume fifty (50) component support efforts.

3.2.11 Concept Development and Concept Selection.

Perform analysis of alternatives and develop a conceptual design to the point that cost estimates and schedules can be produced.

BOE: For estimating purposes, assume five (5) concept development and concept selection efforts.

3.2.12 Custom Design Software.

Using specified object oriented languages, plan, design, architect, author, test, and debug executable source code and graphical user interfaces.

BOE: For estimating purposes, assume five (5) custom design software efforts.

3.2.13 Cyber T&E.

Develop and conduct tests of systems to evaluate compliance with specifications and requirements by applying principles and methods for cost-effective planning, evaluating, verifying, and validating of technical, functional, and performance characteristics (including interoperability) of systems or elements of systems incorporating information technology. The Contractor shall verify Information Assurance and Cybersecurity compliance of the systems in accordance with related policies, practices, and procedures.

BOE: For estimating purposes, assume six (6) cyber security measure development efforts, twelve (12) cyber security assurance determinations, six (6) cyber security system operational testing efforts, four (4) cyber security test plans, four (4) cyber security validation testing efforts, three (3) cyber security hardware testing efforts, twelve (12) network and system vulnerabilities analyses, and two (2) cyberspace vulnerabilities reverse engineering efforts.

3.2.14 Depot Level Procedure Development.

Contribute as a team member in the Depot Level Procedure (DLP) development, certification, and maintenance process. A typical DLP development process consists of a problem/need definition, new process, revision or change, scope of work determination, analysis of alternatives, quote development, repair and test procedure development, technical design reviews, procedure walk through, and administrative review of the test and repair procedure.

BOE: For estimating purposes, assume fifteen (15) DLP creations, revisions, or changes.

3.2.15 Design Shop Tools.

Design, develop, validate, and verify the required tools necessary to complete a repair procedure. Develop test sets and test program sets, test adapters, and the repair program code necessary to conduct an operational test of the unit under test (UUT). If necessary, design and develop specialized tools required for repair and maintenance of components.

BOE: For estimating purposes, assume fifteen (15) shop tool design efforts.

3.2.16 Drawings.

Develop drawings using OrCAD and InteliCAD to document designs.

BOE: For estimating purposes, assume fifteen (15) new system drawings.

3.2.17 Embedded Middleware.

Use specified high level languages, assembly language, and/or hardware descriptive languages, as required, to develop and test source code for embedded firmware on dedicated processors, microcontrollers, and/or field programmable gate arrays (FPGAs).

BOE: For estimating purposes, assume ten (10) embedded middleware efforts.

3.2.18 Engineering Project Support.

Provide support for project planning, scheduling, status reporting, issue resolution, project scoping, budgeting, contract planning, quality assurance, earned value management, and integrated project team (IPT) meetings in a blended Contractor-Government environment. Prepare reports and presentation materials for IPT meetings, CDRs, PDRs, test readiness review, PRRs, and other acquisition milestones as required in support of procurement of weapon systems. Assist with development of project objectives by reviewing project proposals and plans and conferring with management officials. Assist with determination of project responsibilities by identifying project phases and elements, identifying personnel to phases and elements, and reviewing quotes. Assist with development of project specifications by studying product design, customer requirements, and performance standards; completing technical studies; and preparing cost estimates. Assist with review and summarization of product performance, design, and test(s) conducted. Assist with establishment of project schedules by studying project plans and specifications, calculating time requirements, and sequencing project elements. Assist with management of project schedule by monitoring project progress, coordinating activities, and resolving problems. Assist with control of project plan by reviewing design, specifications, and plan and schedule changes, then recommending actions. Prepare project status reports by collecting, analyzing, and summarizing information and trends, then recommending actions.

BOE: For estimating purposes, assume three (3) projects.

3.2.19 Environmental and Relevant Environment Test Evaluation.

Evaluate environmental and relevant environment testing results.

BOE: For estimating purposes, assume ten (10) environmental and relevant environment test evaluation efforts.

3.2.20 Environmental Test.

Apply environmental test engineering concepts to evaluate system/components response relative to the approximated environment and required performance. Perform environmental analysis for under water range technologies. Prepare and update environmental reports/questionnaires.

BOE: For estimating purposes, assume fifteen (15) test plans, fifteen (15) test execution efforts, and fifteen (15) test reports.

3.2.21 Facilities Support.

Provide in-house design and repair project write-ups and cost estimates. Evaluate a facilities project, provide engineering calculations, and perform drafting and design services in support of facilities modifications and construction. Multi-disciplined engineers will work together as a team to support facilities modifications that may have impacts to HVAC systems, fire suppression systems, lighting and electrical distribution, structural components, and seismic upgrades. Provide engineering calculations and design support to define the scope of work, estimate cost, request for proposals, and provide a construction contractor with the drawings and specifications necessary to execute the project. Requires a thorough understanding of the International Building Code, National Fire Protection Association, Unified Facilities Criteria, American Society of Heating, Refrigeration and Air Conditioning Engineers, and National Electric Code and related engineering standards.

BOE: For estimating purposes, assume three (3) facilities projects.

3.2.22 Industrial Engineering.

Design, develop, test, and evaluate integrated systems for managing industrial production processes including human work factors, quality control, inventory control, logistics and material flow, cost analysis, and production coordination to improve the quality and productivity of systems.

BOE: For estimating purposes, assume two (2) industrial engineering projects.

3.2.23 ISEA Mechanical Engineering Support.

Support ISEA and other technical authority functions including design, production, test, fielding, sustainment, and improvement modifications. Provide rigorous and disciplined application and direction of systems engineering (design interface). Perform configuration control and management. Provide expert technical perspective in effective and efficient systems failure analysis and problem resolution. Provide Fleet technical support, lifecycle logistics, obsolescence management, and acquisition engineering support. Perform and provide COTS integration and supportability, software development, technical refreshment, obsolescence management, advanced training systems, distance support, logistics support, and direct waterfront support. Provide performance and reliability analysis and maintainability and availability analysis. Provide maintenance engineering, planning, and management support. Provide environmental and safety engineering support.

BOE: For estimating purposes, assume ten (10) ISEA mechanical engineering support efforts.

3.2.24 ISEA Systems Engineering Support (Computer Programming Engineer/Electrical Engineer).

Design, operation, and sustainment of systems and prototypes for a military environment. Develop, process, and manage systems engineering artifacts such as SEPs and engineering change proposals. Support requirements analysis and management including providing assistance in defining new requirements and use cases and allocation of requirements to subsystems and configuration items. Provide reliability analysis for software or hardware systems and interfaces including failure analysis and software metrics. Analyze new tasking, engineering change requests, and design implementation to determine feasibility, capacity, cost, and production time. Model, analyze, and conduct technical risk assessments of proposed and alternate solutions. Provide interface design for software or hardware systems. Attend meetings, record action items, and develop minutes and trip reports.

BOE: For estimating purposes, assume ten (10) ISEA systems engineering support efforts.

3.2.25 Metallurgy.

Address issues related to various material conditions, heat treatments, surface treatments, and related corrosion issues. Perform feasibility analysis on technologies and tradeoffs while considering design constraints, integration, compatibility, and implementation of technologies. Assess material condition for coatings such as thermal spray, laser cladding, and thermal forming. Examine microstructure of metals to identify manufacturing techniques, age related issues, heat treatments, carburizing, nitriding, annealing, normalizing, grain size effects, and changes in material properties due to heating. Perform failure analysis/root cause analysis to determine the source of a metal failure.

BOE: For estimating purposes, assume twelve (12) failure analysis reports.

3.2.26 Modeling and Simulation.

Provide guidance and support relating to modeling and simulation. Apply models – physical, mathematical, or otherwise logical representation of systems, entity, phenomenon, or process – as a basis for simulations. Apply methods for implementing a model, either statically or over time, to develop data as a basis for managerial or technical decision making. Design, develop, and implement hardware and software; in the loop simulations; and live, virtual, and constructive simulations. Work with project leads and/or systems engineers to ensure modeling and simulation is performed in accordance with current best practices to support acquisition program development, research and development, and production.

BOE: For estimating purposes, assume five (5) modeling and simulation efforts.

3.2.27 PCB Process Engineering.

Use and guide/monitor the use of electronics shop manufacturing equipment and processes to create reliable PCBs that meet design requirements. Perform inspection, troubleshooting, repairs, and quality assurance on the PCBs.

BOE: For estimating purposes, assume five (5) PCB process engineering efforts.

3.2.28 Pinger Support.

Perform pinger in-service engineering support by performing hardware troubleshooting, developing drawing packages, and designing circuits. Develop/modify OHIO, VIRGINIA, and COLUMBIA class submarine temporary alterations (TEMPALTS) for range tracking pinger installations.

BOE: For estimating purposes, assume four (4) TEMPALTS, four (4) drawing packages, and two (2) circuit design efforts.

3.2.29 Preliminary Design Review.

Support PDRs conducted to ensure deliverables meet the customer's requirements and to provide a go or no-go for continuing development.

BOE: For estimating purposes, assume five (5) PDR efforts.

3.2.30 Pre-Production Model Development.

If required to meet further development, design, or test goals, build pre-production models to prove out manufacturability, reliability, or to ensure mandated environmental, relevant environment (e.g. flight, swim, etc.) or other test objectives are met.

BOE: For estimating purposes, assume five (5) pre-production model development efforts.

3.2.31 Produce and Test First Articles.

Support Government production and test of first articles to ensure they meet the specified requirements.

BOE: For estimating purposes, assume production/test of five (5) first articles.

3.2.32 Production Acceptance.

Provide production acceptance system development, management, and training. Design/improve production and test systems/processes. Support failure data collection and analysis. Design/improve production and test systems processes.

BOE: For estimating purposes, assume twelve (12) production acceptance system instruction/process development efforts, twelve (12) production acceptance training efforts, twelve (12) status reports, and five (5) failure analysis support efforts.

3.2.33 Production Readiness Review.

Support PRRs conducted to confirm that a design is ready for production, production engineering issues have been resolved, and the producer has adequately planned to produce the item.

BOE: For estimating purposes, assume five (5) PRR efforts.

3.2.34 Production Support.

Evaluate and address any issues that emerge during production that require engineering evaluation and resolution.

BOE: For estimating purposes, assume ten (10) production support efforts.

3.2.35 Prototype Development and Test.

Develop prototypes to prove out concepts. Support Government testing of prototypes to ensure a robust, reliable design that meets the stated requirements.

BOE: For estimating purposes, assume five (5) prototype development and test efforts.

3.2.36 Quote Development.

Develop a cost and schedule quote based upon a selected concept and requirements output.

BOE: For estimating purposes, assume ten (10) quote development efforts.

3.2.37 Ranges.

Perform environmental analysis for underwater range technologies. Prepare and update environmental reports/questionnaires. Support failure data collection and analysis.

BOE: For estimating purposes, assume two (2) environmental reports and twelve (12) environmental questionnaires.

3.2.38 Requirements Definition.

Assist with the development of a requirements list for a project.

BOE: For estimating purposes, assume five (5) requirements definition efforts.

3.2.39 Reverse/Re-Design Engineering and Engineering Analysis.

Use available requirements, drawings, schematic analysis, testing, and troubleshooting to determine the characteristics, interfaces, and functional performance of a given device or system. Evaluate components and assemblies with no existing TDP, or incomplete data packages, and develop accurate draft schematics/drawings in accordance with industry standards. Perform engineering analysis to determine test parameters and requirements for non-destructive and destructive testing, if required. Identify all required inspection points, verification points, and test points within a repair procedure that would be required to return an item to a ready-for-issue state.

BOE: For estimating purposes, assume twenty (20) reverse engineering projects.

3.2.40 Schematic Design and Analysis.

Interpret complex specifications and perform design and schematic entry of electronic circuits and systems to meet requirements or recommend improvements.

BOE: For estimating purposes, assume ten (10) schematic design and analysis efforts.

3.2.41 Systems Engineering.

Provide systems engineering support throughout product life cycle phases, including concept of operations, high-level requirements, detailed requirements, high-level design, detailed design, implementation, integration and testing, system verification, and operation and maintenance. Support development phasing to control the design process and provide baselines that coordinate design efforts. Establish systems engineering processes that provide structure for solving design problems, as well as track requirements flow through the design effort. Facilitate life-cycle integration efforts to ensure systems developed are viable throughout their life. Assist with the development of systems engineering plans, tools, and resources. Support verification and validation efforts. Support technical planning, configuration baseline development/management, life cycle integration, management

of functional and physical architectures, interface management, risk management, system safety engineering efforts, trade studies, and quality assurance efforts. Prepare materials for and support IPT meetings and milestone/program reviews.

BOE: For estimating purposes, assume three (3) systems engineering projects.

3.2.42 Technical Documentation Packages.

Develop TDPs including drawings, BOMs, manuals, engineering notes, project plans, procedures, parts/prototype procurement documentation, specifications, test procedures, and other documentation required for specified deliverables.

BOE: For estimating purposes, assume eight (8) TDPs.

3.2.43 Technology Assessment.

Conduct technology assessment and integration processes; provide and support a prototype capability and/or evaluate its utility.

BOE: For estimating purposes, assume three (3) technology assessments.

3.2.44 Test and Evaluation System Support.

Install, configure, troubleshoot, and maintain T&E systems configurations (hardware and software) to ensure their confidentiality, integrity, and availability. Manage accounts, system Security Technical Information Guides (STIGs), and patches. Responsible for access control, passwords, and account creation and administration.

BOE: For estimating purposes, assume twelve (12) database user account maintenance efforts, twenty-four (24) create/maintain forms/reports/requests efforts, and four (4) installations and configurations of database management systems software, including application of STIG requirements.

3.2.45 Test and Repair Process and Procedure Development.

Develop maintenance and test capabilities for components and assemblies that may or may not be accompanied by a TDP. A plan for development shall include a timeline with deliverables for non-recurring engineering (NRE) development projects. A typical NRE project consists of documentation review, UUT reverse engineering, test adapter design, UUT test development, procedure development, and administrative review of the repair and test procedure.

BOE: For estimating purposes, assume thirty (30) NRE projects.

3.2.46 Test Sets.

Design/build test sets from hardware test requirements and test specifications.

BOE: For estimating purposes, assume three (3) test sets, three (3) test set project plans, three (3) test set designs, three (3) test set prototype procurements, three (3) test set hardware/software development efforts using LabVIEW, three (3) test set qualifications, three (3) test set TDPs, three (3) test set procedures, and three (3) test set final version procurement/build efforts.

3.2.47 Test Set Support.

Respond to shop floor requests for test set support and all support and test equipment within two (2) hours. The requirements identified under paragraph 3.2.10 for component support also apply to test set support.

BOE: For estimating purposes, assume thirty (30) test set support efforts.

3.2.48 Training Support and Qualification Management.

Develop instructional content and material for industrial, engineering, safety, and technical processes. Present training in an instructional environment. Maintain qualification records for the training provided.

BOE: For estimating purposes, assume five (5) training support development efforts and one-hundred (100) qualification management efforts.

3.2.49 Unmanned Undersea Vehicles.

Develop UUV test plans. Develop modeling and simulation of UUVs. Support project management of UUV projects and programs.

BOE: For estimating purposes, assume three (3) UUV test plans, three (3) modeling and simulation efforts, and twelve (12) status reports.

4. General Information.

4.1 Deliverables and Digital Data Management.

The Government shall own all data created under this task order. The Contractor shall identify all software and other data to be delivered with less than unlimited rights. The Government reserves the right to review all data associated with and developed for this task order. The Contractor shall be responsible for the digital generation, reception, and electronic delivery of data. All data shall be developed, managed, used, and exchanged electronically to the greatest extent practicable. Deliverables shall be prominently marked with the task order number. The Contractor shall maintain compatibility with the internet browser, electronic mail (e-mail), and software used by NUWC Division, Keyport throughout the life of the task order. NUWC Division, Keyport operates on the Navy Marine Corps Intranet (NMCI) and runs Microsoft Office products and Adobe Acrobat. Controlled unclassified information (CUI), as defined in the attached DD Form 254, transmitted via e-mail must be encrypted using current DOD/DON standard employing public key infrastructure credentials.

4.1.1 Electronic Mail.

E-mail shall be used to facilitate the transfer of unclassified data only. Classified data shall not be transmitted electronically on unclassified networks. Use of e-mail shall not relieve the Contractor from compliance with other areas of this task order requiring other types of communication.

4.1.2 Delivery.

Items submitted electronically shall be considered delivered when they are successfully transmitted and received.

4.2 Management Plan.

The Contractor shall develop and submit to the Government a management plan in accordance with CDRL A001. The plan shall establish and maintain a management program to be used during task order performance, incorporating details of the requirements set forth in this PWS. The management plan shall reflect an understanding of all tasks and performance objectives specified in this PWS, and describe an approach to satisfy those requirements. At a minimum, the plan shall identify all Contractor resources and contain a staffing plan detailing how these resources will enable the Contractor to meet performance objectives.

4.2.1 Project Management.

The Contractor shall designate a Program Manager (PM) with an engineering skill set to be available during the hours of operation specified in paragraph 4.6.1. The PM shall be the central point of contact with the Government for performance of all work under this task order. The Contractor shall designate an alternate PM or task lead during the PM's absence. The Contractor shall notify the COR verbally, if possible, and by e-mail of unresolved disputes regarding providing support to customers within two (2) hours from the time the dispute occurs.

4.2.1.1 Weekly Expenditure Report.

The Contractor shall provide a Weekly Expenditure Report in accordance with CDRL A002. The report shall be calculated at the lowest level contract line item number (CLIN)/sub-line item number (SLIN) and include the total labor hours expended for the week, cumulative total labor hours to date, and percentage of total labor hours spent to date. The report shall also include total funds expended for the week, cumulative total funds spent to date, and percentage of total funds spent to date. The report shall also summarize the percentage of work completed for the week, and cumulative percent of total work completed to date. Overtime hours, dollar amounts, and work completed shall be reported as a separate line item for each CLIN/SLIN.

4.2.1.2 Monthly Financial Report.

The Contractor shall provide a Monthly Financial Report in accordance with CDRL A003 that provides details of technical and financial status to the lowest CLIN/SLIN level. The report shall identify the latest negotiated task order changes received via modification and shall identify clarified tasking from TI letters issued during the reporting period. The report shall include the funds and labor hour expenditures by skill level and the other direct cost (ODC) expenditures for the reporting period. The report shall also include the cumulative expenditures to date for labor hours, and any estimated cost and funds to complete funded hours. Work completed shall be identified graphically, showing actual completion versus planned completion.

4.2.1.3 Program Manager's Report.

The Contractor shall provide a monthly Program Manager's Report in accordance with CDRL A004 that summarizes the progress of work and status of the tasking and provides a synopsis of any existing or potential problem areas. The Contractor shall include status of previously identified problem areas with conclusions or recommendations; any significant changes to the Contractor's organization or methods of operation; problem areas affecting cost, technical or schedule elements; and specific task area issues. The report shall contain summary data showing task order value, amount funded to date, cost of work performed during the period, planned travel and its purpose, actual monthly hours utilized by CLIN/SLIN, and invoice date/amount/number associated with the incurred costs/hours/ODCs.

4.2.1.4 Meetings.

The Government and Contractor shall mutually agree to a day and time for quarterly review meetings for the purposes of identifying problem areas, problem resolution, and keeping open lines of communication. The Government and Contractor shall also agree to a day and time for monthly management meetings for discussion of issues related to task execution, staffing, funding, and any other necessary topics of discussion related to the execution of the task order. The contractor shall collect and prepare meeting minutes in accordance with CDRL A005. The Contractor shall prepare presentation material for the meetings in accordance with CDRL A006.

4.2.2 Quality Control.

The Contractor shall describe their Quality Control Program (QCP) in the management plan delivered under CDRL A001. The Contractor is solely responsible for the quality of services provided. The Contractor is liable for Contractor employee negligence and any fraud, waste, or abuse. As part of Program Management, the Contractor shall utilize a quality control program to ensure that services are completed in accordance with acceptable principles of internal control, and that they meet specified acceptable quality levels (AQLs). The QCP shall specify a method to identify deficiencies in services that may occur, and procedures to correct any deficiency in services that may occur. Execution of the QCP shall be documented and made available to the Government upon request.

4.2.3 Quality Assurance.

The Contractor shall ensure that all work meets performance objectives, standards, and tolerances specified or included in the applicable project documentation. The Contractor shall perform any required quality self-checks for operations performed and take corrective action as necessary. Deliverables and performance will be evaluated by Government Quality Assurance Evaluators (QAEs), Branch Heads, customers, and the COR in accordance with the attached Performance Requirements Summary, which identifies the mission critical items for performance under this task order. The Contractor shall develop quality control procedures that address the areas identified in

the AQLs listed in the Performance Requirements Summary. Only performance deficiencies that are directly attributable to Contractor error are considered when measured against the performance threshold. The Government will monitor the Contractor's performance. The Government reserves the right to review services to be provided, including those developed or performed at the Contractor's facilities, to determine conformance with performance and technical requirements. Government quality assurance will be conducted by the COR and QAEs on behalf of the Contracting Officer. The COR will be appointed to coordinate the overall quality assurance of technical compliance. The contractor shall develop quality control procedures that address the areas identified in the Acceptable Quality Levels (AQLs) identified in the Performance Requirements Summary included in Attachment 2, Quality Assurance Plan (QASP). The Performance Requirements Summary table provided in Attachment 2 identifies the mission critical items for performance under the task order.

4.2.4 Subcontractor Management.

The Contractor is responsible for performance requirements delineated in this PWS, and shall institute appropriate management actions relative to subcontractor performance. Requirements that are contractually specified shall apply to subcontractor performance; however, the Contractor shall be accountable for compliance of subcontractors, and is responsible for ensuring all deliverable products comply with task order requirements.

4.3 Contractor Employees.

Required skill sets are identified in Table 3-1 of this PWS. The Contractor shall ensure that Contractor employees are trained, qualified, certified, or licensed as required by this task order prior to starting work. The Contractor shall ensure that that all training, licenses, and certifications remain current. The Contractor shall maintain records of training qualifications and certifications. If there appears to be a deficit in levels of competency or training of Contractor personnel, the COR will notify the Contractor's PM. The Contractor will have three (3) working days to provide the COR with an acceptable solution. The Contractor is responsible for ensuring that all personnel employed for this task order are given a copy of the PWS.

4.4 Training.

The Government will only provide training to Contractor personnel for NUWC Division, Keyport specific applications. Only the cost of labor hours for training required by the Government will be paid by the Government. The cost of labor hours for training requested by the Contractor will be paid by the Contractor. The Contractor shall not proceed with scheduling or paying for training without a signed TI letter.

4.5 Standards of Conduct.

The Contractor shall be responsible for maintaining satisfactory standards of employee competency, conduct, and integrity and shall be responsible for taking such disciplinary action with respect to their employees as may be necessary. Each employee shall adhere to standards of behavior that reflect well on himself/herself, his/her employer, and the Federal Government.

4.5.1 Employee Removal.

The Government may require transfer/removal from this task order any employee who is identified as a potential threat to the health, safety, security, general well-being, or operational mission of the facility or its population.

4.5.2 Clearance and Certifications.

The Contractor's failure to acquire and maintain clearance and certification requirements of its employees may result in removal or transfer from this task order. The Contractor is responsible for tracking of current status and compliance.

4.6 Keyport Operations.

4.6.1 Hours of Operation.

Normal hours of operation are from 0700 to 1600 Monday through Friday, except Federal holidays. Contractor

personnel may be required to adjust their work hours to accommodate the requirements of the task or to align to other employees' schedules (e.g., compressed work schedule). The Contractor may be required to respond to an emergency requirement and work outside of regular working hours to perform the tasking. Variances and exceptions in working hours must be approved by the COR. Alternate work schedules used by the Contractor must not negatively impact task order deliverables or project schedules.

4.6.2 End of Calendar Year Operations Shut Down Period.

NUWC Division, Keyport halts non-essential operations during the period between Christmas and New Year's Day every year. Contractor personnel performing on-site services at Keyport shall not work on-site at Keyport during this time frame without Contracting Officer approval.

4.6.3 Early Dismissal and Closure of Government Facilities.

When a Government facility is closed and/or early dismissal of Federal employees is directed due to severe weather, a security threat, or a facility related problem that prevents personnel from working, on-site Contractor personnel regularly assigned to work at that facility shall follow the same reporting and/or departure directions given to Government personnel. The Contractor shall not direct charge to the task order for time off, but shall follow parent company policies regarding taking leave (administrative or other). Non-essential Contractor personnel who are not required to remain at or report to the facility shall follow their parent company policy regarding whether they should go/stay home or report to another company facility. Subsequent to an early dismissal and during periods of inclement weather, the on-site Contractor employees' PM should monitor the Keyport Operations Status line at 360-396-2553 to determine if the facility is closed or operating on a delayed arrival basis.

4.6.4 Special Events.

When Federal employees are excused from work due to a holiday or a special event that is unrelated to severe weather, a security threat, or a facility related problem, on-site Contractors shall continue working established work hours or take leave in accordance with parent company policy. Those Contractor personnel who take leave shall not direct charge the non-working hours to the task order.

4.6.5 Federal Holidays.

All Government offices will be closed, except for minimum essential personnel, as required, during Federal holidays. Except as otherwise specified, the Contractor shall not schedule routine work on Federal holidays.

4.6.6 Access to Naval Base Kitsap during an Emergency.

The federal government, state government, and regional commands may impose specific requirements and restrictions to protect the workforce and the public from an unforeseen event such as a natural disaster, pathogenic epidemic/pandemic, or other declared emergency. These requirements and restrictions shall be observed and followed by the Contractor and Contractor employees. Base access during emergency circumstances may be limited, and may involve personnel screening, specific reporting requirements, and social distancing restrictions. Information about the Force Protection Condition (FPCON) and Health Protection Condition (HPCON) level for Naval Base Kitsap, and changes to base access procedures and workforce restrictions may be obtained by contacting the Contracting Officer or the COR.

4.7 Telework.

Teleworking may be permitted on a situational basis. Telework must be approved by the COR. Upon completion of teleworking, the contractor must submit a telework report to the Program Manager detailing the work accomplished during the telework hours by close of business the following workday. The Program Manager shall submit any telework reports developed during the month as an attachment to the Contractor's Progress, Status, and Management Report (CDRL A004).

4.8 Overtime.

Overtime may be required to support emergent requirements. These hours are identified in the attached Estimated Level of Effort. Overtime shall be requested by the Government work area lead by e-mail to the COR with the Contractor's PM on copy. Overtime shall be approved through issuance of a TI letter. The PM is to report the actual hours worked by each individual to the COR in the Weekly Expenditure Report (CDRL A002). Overtime that is not authorized by TI letter will not be authorized for payment. Should the need arise in such a manner that written authorization is not possible, a verbal approval shall be obtained from the Contracting Officer to be followed up in writing within two (2) working days.

4.9 Workload Tracking.

When part of a formal Government process or procedure, contractors shall enter time worked in Government project tracking systems such as the Shop Workload Management System (SWMS) and the Enterprise Resource Planning (ERP) for the purposes of data collection required for workload planning, project estimating, and Government cost center calculations.

4.10 Prioritization of Performance Requirements.

The Government may give technical direction to the task performers to identify tasking and prioritize efforts to meet organizational goals and mission priorities. Technical direction will originate from the Government program manager, work area lead, Contracting Officer or their appointed technical direction representative. The work area lead will notify the COR and Contractor PM of the direction given. It is understood that this reprioritization will neither change the scope of the contract nor be at any additional cost. Contractors shall immediately and before taking action, notify the Contracting Officer if technical direction is issued which they believe changes the requirements of the PWS.

4.11 Travel.

Travel may be required for task order performance. Dates, locations, and task requirements will be provided in a TI letter signed by the Contracting Officer. The Contractor shall ensure passports are available for travel into Canada. Per diem for meals and incidental expenses (M&IE) and mileage will be reimbursed in accordance with GSA per diem rates and mileage reimbursement rates. The Contractor shall not procure business or first class flights. Any travel costs exceeding those allowed under the TI letter will not be reimbursed. Estimates for travel are identified in Attachment 7, Estimated Other Direct Costs, and are provided for estimating purposes only.

4.12 Safety.

The Contractor shall comply with the latest applicable federal and state laws, regulations and management plans, and requirements regarding occupational safety and health. In the event that safety laws, regulations, or requirements change during the term of the contract, the Contractor is required to comply as such laws come into effect.

4.12.1 Safety and Health Standards.

Work to be performed under this task order must be accomplished in accordance with safety and health standards and directives pursuant to Public Law 91-596, "Occupational Safety and Health Act of 1970." Numerous safety and health standards exist that apply to operations at NUWC Division, Keyport. These include but are not limited to 29 CFR 1910, "General Industry Standards," 29 CFR 1915, "Maritime Standards," 29 CFR 1926, "Construction Standards," WAC-296-24, "General Safety and Health Standards," EM385-1-1, "US Army Corps of Engineer Safety and Health Requirements," UFGS-01 35 26, "Unified Facilities Guide Specification", and the NUWC Division, Keyport Occupational Safety and Health directive series 5100. General information for contractors can be found in NUWC Division, Keyport's "Safety Requirements for Contractors and Subcontractors," which can be accessed online at <http://www.navsea.navy.mil/nuwc/keyport/default.aspx>; click on the Resources tab to access the guidance.

4.12.2 Safety Shoes.

Contractors who are required to walk through industrial shop areas outside delineated safety lanes are required to wear safety shoes that meet the requirements of ASTM F2413, "Performance Requirements for Protective (Safety)

Toe Cap Footwear," for compression and impact.

4.12.3 Accident Reporting.

All accidents and injuries involving Contractor employees shall be reported immediately to the Government work area supervisor, the Contractor's safety office, the NUWC Division, Keyport Safety Office, and the COR. The Contractor shall cooperate with any safety investigations and ensure availability of all information, personnel, and data pertinent to the investigation. The Contractor shall provide work related injury and illness information to the COR before 31 January of each calendar year in accordance with NUWC Division, Keyport's "Safety Requirements for Contractors and Subcontractors."

4.12.3.1 Occupational Safety and Health Administration (OSHA) Reporting.

The Contractor is responsible for any required OSHA reporting requirements following accidents and injuries of Contractor employees.

4.12.4 Emergency response.

During emergency conditions including emergency drills, all on-site Contractor employees shall follow the building Emergency Action Plans, muster at designated locations, and obey orders from the Incident Scene Commander.

4.13 Energy Conservation.

The Contractor shall participate actively in the NUWC Division, Keyport energy conservation program as defined by the Security Division, Safety Department, and NUWCDIVKPT 4100.2, "Energy Conservation."

4.14 Environmental Compliance Requirements.

The Contractor shall comply with, and ensure that all subcontractors comply with, all applicable federal, state, and local environmental laws and regulations; Navy policies, instructions, and plans; and ISO 14000, "Environmental Management."

4.15 Hazardous Waste and Material Control/Handling.

The Contractor shall comply with all applicable Navy instructions including, but not limited to, NUWCDIVKPT 5090.1, "Environmental Program Policy and Manual," NUWCDIVKPT 5090.11, "Hazardous Waste Management Plan/Procedures," NUWCDIVKPT 5090.4, "Pollution Prevention and Hazardous Waste Minimization," NUWCDIVKPT 5090.3, "Hazardous Material Control and Management Procedures," and OPNAVINST 5090.1D, "Environmental Readiness Program."

4.16 Security.

4.16.1 General Security Guidance and Classification of Equipment, Components, Spaces, and Documents.

The security directives, instructions, and guidance herein and in the contract DD Form 254 apply to contractor employees requiring physical access to any area of a federally controlled installation, facility, or activity and/or requiring access to classified information and/or requiring access to controlled unclassified information (CUI), such as limited distribution technical information and personally identifiable information (PII), and/or requiring access to a Department of Navy (DON) computer/network/system that affords access to classified information or CUI; and/or who are performing duties that have been identified by DON as meeting requirements for a National Security Position, as determined by the Command Security Manager. The equipment, components, spaces, and documents used may be classified and are subject to the applicable references above. Contractor personnel supporting this task order who require access to classified spaces, equipment, or documents will require a security clearance in accordance with the attached DD Form 254.

4.16.2 Subcontracting.

The Contractor shall immediately notify the Contracting Officer and Security Contracting Officer prior to subcontracting, and submit a copy of the sub-contractor's DD Form 254, if applicable.

4.16.3 Security Inspections.

Command security inspections shall occur annually, and the Government Department Heads and CORs shall be informed of inspection results. Security inspections will include all embedded Contractor personnel working in government facilities. Unannounced security spot-checks of departments will occur throughout the year, and are at the discretion of the Government.

4.16.4 Security Education.

In accordance with SECNAV M-5510.36B, "Department of the Navy Information Security Program," Contractor employees embedded in Government work spaces shall be included in the Command security education program (i.e., review each Security Training Quarterly Bulletin and those with secret or above security clearances must attend a locally provided Naval Criminal Investigative Service counterintelligence briefing annually). Contractor personnel supporting this task order who require access to classified spaces, equipment, or documents will require additional security related training in accordance with the attached DD Form 254.

4.16.5 Security Clearances.

In accordance with SECNAV M-5510.30C, "Department of the Navy Personnel Security Program," and DoD 5220.22-M, "National Industrial Security Program (NISPO) Operating Manual," contractor personnel supporting this task order require a security clearance level of SECRET or interim Secret access granted by the Contractor Facility Security Officer (FSO). Contractor personnel supporting this task order who require access to classified DON information systems or network systems are required to follow additional security guidance in accordance with the attached DD Form 254.

4.16.6 Controlled Area Procedures.

The Contractor shall comply with local instructions and procedures for access to controlled areas. Contractor personnel supporting this task order who require access to controlled classified spaces, equipment, or documents will follow additional security related guidance in accordance with the attached DD Form 254. Access to Government facilities/installations is at the discretion of the Government. The Government reserves the right to rescind access at any time. In each instance when contractors are terminated, separated, or the contract is at the end date, the Contractor's FSO shall ensure the prompt return of any issued items to the Government issuer (e.g. Government property, Government-owned keys, CACs, and/or issued identification picture badges).

4.16.7 Controlled Unclassified Information (CUI), Classified, and Proprietary Data Handling.

The Contractor shall handle controlled unclassified information (CUI), classified information, and proprietary data in accordance with DODM 5200.01, Volumes 1-34, "DOD Information Security Program," DoDI 5200.48, "Controlled Unclassified Information (CUI)," SECNAV M-5510.36B, "DON Information Security Program," and NAVSEAINST 5510.1C, "Security Program Instruction." DOD security classification guides and unclassified limited documents (e.g., FOUO, distribution statement controlled) are not authorized for public release and, therefore, cannot be posted on a publicly accessible webserver or transmitted over the internet unless appropriately encrypted.

4.16.8 Contractor Identification (ID).

4.16.8.1 NAVSEA Keyport Picture Badge.

A Contractor employee picture badge may be issued to Contractor employees by the Naval Base Kitsap - Keyport Pass and ID Office upon receipt of a valid visit request from the Contractor and a picture badge request from the COR. The Contractor PM shall provide a list of Contractor personnel requiring picture badges to the COR for verification that the task order authorizes performance at NUWC Division, Keyport prior to completion of the picture badge request.

4.16.8.2 DOD Contractor Employee Common Access Card (CAC).

Contractor personnel will be issued a CAC card for base access, building access, and computer system access. The Contractor Program Manager shall provide the COR with a completed DD Form 1172-2, "Application for Identification Card/DEERS Enrollment," for a Contractor employee seven (7) working days prior to the Contractor employee's projected work start date. The COR will then request a preliminary security approval for the Contractor employee. Once the Security department provides preliminary security approval, the COR will initiate a Trusted Associate Sponsorship System (TASS) enrollment for the Contractor employee and provide a user ID and password for the Contractor employee to the Contractor Program Manager. The Contractor employee shall then complete the TASS application online and the COR, acting as Trusted Agent in TASS, will approve or reject the application. Once the security clearance process is complete and the Contractor employee has received the required clearance, the Contractor employee will be instructed to bring two forms of ID to the appropriate CAC issuing office to receive their CAC card.

4.16.8.3 Responsibility for Government Furnished ID.

The Contractor assumes full responsibility for the proper use of ID badges and shall be responsible for the return of all badges upon termination of personnel or expiration or completion of the task order. The Contractor shall inform the COR immediately of any unreturned badges with a written explanation for any missing badges.

4.16.8.4 Contractors in the Workplace.

Contractor personnel shall possess the Government furnished ID badge at all times when performing work under this task order and shall display the badge on their outermost garment above the waist. Contractor employees are required to clearly identify themselves and the company they work for whenever making contact with Government personnel by telephone or other electronic means, including e-mail signatures and while on official travel. Contractor employees are required to clearly identify themselves and the company they work for on any name plates or similar identifying items in work areas on Government facilities.

4.16.9 Contractor Base Access.

Contractor employees shall access NUWC Division, Keyport and any other necessary Navy bases or sites in accordance with the access and security processes of each location. At NUWC Division, Keyport, vehicle decals are not required, but personally owned vehicles must be registered with the Pass and ID Office for safety and security purposes. Contractor employees shall show Government furnished ID to gain access to the base. Contractor employees shall observe speed limits, refrain from using cell phones while driving on the base, and park in appropriate, designated lots and spaces.

4.16.10 Operations Security (OPSEC) Requirements.

Performance under this task order requires the Contractor to adhere to OPSEC requirements. OPSEC requirements are additional to the requirements of DOD 5220.22-M, "National Industrial Security Program (NISPO) Operating Manual." Therefore, Contractors may not impose OPSEC requirements on their subcontractors unless NUWC Division, Keyport approves the OPSEC requirements. The Contractor shall assign an OPSEC point of contact for this task order. Explanations of these requirements are detailed in the Operations Security Guide for Defense Contractors available online at: <http://www.navsea.navy.mil/nuwc/keyport/default.aspx>; click on OPSEC Guide for Defense Contractors on the left-hand side.

4.16.10.1 Critical Information (CI). Critical information shall be identified and protected as follows:

- a. During the period of this task order, the Contractor may be exposed to, use, or produce, U.S. Government CI and/or observables and indicators which may lead to the discovery of CI. The Contractor will accomplish the following minimum requirements in support of the NUWC Division, Keyport OPSEC Program:
- b. Practice OPSEC and implement countermeasures to protect CI and other sensitive unclassified information and activities vigilance, or degrade the planning and execution of military operations performed or supported by the Contractor in support of the mission. Protection of CI will include the adherence to and execution of countermeasures, that are either contractor initiated or provided by NUWC Division, Keyport for CI related to this

PWS.

- c. OPSEC Awareness Education and Training will be provided or coordinated through Government channels (i.e. NUWC Division, Keyport OPSEC Program, Interagency OPSEC Support Staff (IOSS), etc.). All personnel supporting the task order will receive initial OPSEC awareness training and annual OPSEC refresher training; contact the NUWC Division, Keyport Security Division at (360) 396-5345 for assistance with this requirement.
- d. Assign an OPSEC point of contact for this task order.
- e. CI listed below, listed in the NUWC Division, Keyport Command Critical Information List, or additional information identified by the COR will be marked and handled appropriately as FOR OFFICIAL USE ONLY (or FOUO), CUI, COMPANY PROPRIETARY. CI (not exhaustive list below; more can be added as relevant to the specific program) includes those facts, which individually, or in the aggregate, reveal sensitive details about the U.S. Government and/or NUWC Division, Keyport or the Contractor's security or operations related to the support or performance of this PWS, and thus require a level of protection from adversarial collection or exploitation not normally afforded to unclassified information. This includes but is not limited to:
 - (1) Known or probable vulnerabilities to any U.S. system and their direct support systems.
 - (2) Details of information about military operations, missions, and exercises.
 - (3) Details of U.S. systems supporting combat operations (numbers of systems deployed, deployment timelines, locations, effectiveness, unique capabilities, etc.).
 - (4) Required performance characteristics of U.S. systems using leading edge or greater technology (new, modified, or existing).
 - (5) Telemetered or data-linked data or information from which operational characteristics can be inferred or derived.
 - (6) Existence and/or details of intrusions into or attacks against DOD networks or information systems, including, but not limited to, tactics, techniques, and procedures used; network vulnerabilities exploited; and data targeted for exploitation.
 - (7) Network user IDs and passwords.
 - (8) Vulnerabilities in Command processes, disclosure of which could allow someone to circumvent security, financial, personnel safety, or operations procedures.
 - (9) Force Protection specific capabilities or response protocols (timelines/equipment/numbers of personnel/training received, etc.).
 - (10) Command leadership and VIP agendas, reservations, plans/routes, etc.
 - (11) Detailed facility maps or installation overhead photography (photo with annotation of Command areas or greater resolution than commercially available).
 - (12) Details of NUWC Keyport emergency evacuation or emergency recall procedures.
 - (13) Government personnel information that would reveal force structure and readiness (such as recall rosters or deployment lists).
 - (14) Compilations of information that directly disclose Command CI.
- f. All CI in electronic or hardcopy form must be protected in accordance with the level of protection required for CUI as specified under the information and physical security requirements of this PWS.

4.16.10.2 CI Disposition.

All CI must be destroyed at task order termination or returned to the Government at the Government's discretion.

4.17 Government Furnished Property (GFP).

GFP is anticipated for this task order. The services being performed require the contractor to work at NUWC Division, Keyport. The Government will provide workspaces, telephones, computers, and office supplies, as well as access to the software and equipment unless otherwise specified that is needed to accomplish this work in accordance with the guidelines listed below. This is not considered GFP, as it will remain on station. In accordance with paragraph 4.8, telework may be approved on a situational basis during the period of performance of the task order. If telework is required and a contractor needs to take Government property off station, the requirements of the GFP clauses in the task order shall apply. The contractor shall submit a Government Property Inventory Report in accordance with CDRL A007.

4.17.1 Ergonomic Desk Equipment.

When Contractor employees require ergonomic desk equipment (including, but not limited to, sit-stand desks, chairs, keyboards, mice, etc.), the Contractor is responsible for providing such equipment. Equipment brought on base for this purpose shall be tagged as Contractor owned equipment.

4.17.2 Guidelines for the Use of GFP.

The Contractor shall use GFP, software, systems, and services for official use only that is directly related to the performance of work under this PWS. The Contractor shall comply with the following guidelines in which the term "PC" pertains to both desktop and laptop PCs:

- a. Connection of privately owned PCs to a Government network is prohibited.
- b. Connection of privately owned handheld computing devices to Government PCs is prohibited.
- c. Contractors shall not modify Government furnished PCs.
- d. Use of privately owned software on Government PCs is prohibited.
- e. The Contractor shall adhere to applicable software license terms and conditions.

4.17.3 Joint Use Property.

The Government will make specific Government-owned vehicles and equipment available to the Contractor as joint use vehicles and equipment for the Contractor's use in the performance of this task order. The Contractor will have access to and ability to use this property, with the exception that the Government has first priority for the use of the property. The Government will remain the accountable custodian of the joint use vehicles and equipment and will be responsible for equipment replacement. The use of designated joint use property for other than efforts performed under this task order is prohibited. Advance notice shall be provided and arrangements made with Government property custodians when the Contractor employee requires use of the joint use vehicle or equipment. The liability for and full cost of accidents or abuse is the responsibility of the operator's agency. The Contractor shall provide insurance in accordance with 48 CFR 52.228-5, "Insurance -- Work on a Government Installation," 48 CFR 52.228-7, "Insurance -- Liability to Third Persons," and clause C-228-H002, "Minimum Insurance Requirements (NAVSEA)(JAN2019)."

4.17.4 Contractor Furnished Equipment.

The Contractor shall provide their employees with any special equipment required outside of the basic property supplied by the Government.

4.17.5 Relinquishment of Government Badges and Keys.

Contractor personnel are required to return to the COR all Government badges and keys, issued by NUWC Division, Keyport, immediately upon termination from this task order.

4.18 Release of Information.

The Contractor shall not release any information (including photographs and films, public announcements, or

denial or confirmation of issues of contractual concern) of any subject matter within the scope of this task order to the media or any other unauthorized users without the prior written approval of the Contracting Officer.

4.19 Access to all Information Technology System Files.

All data generated in the performance of this PWS and system database updates are the sole property of the Government. Data files generated under this task order may not be transferred to third parties or disseminated or used for any purpose other than as required for task order purposes.

4.20 Electronic Mail.

The Government will provide the Contractor with user accounts on the Government's electronic mail system to facilitate Contractor's performance under this PWS. The Contractor shall comply with applicable site instructions regarding the use of electronic mail.

4.21 Transition Plan.

4.21.1 Phase In.

The Contractor shall provide transition services in accordance with the Contractor's transition plan. Transition services shall be limited to only those services required to prepare for full performance of services. The transition shall be for a period of thirty (30) days.

4.21.2 Phase Out.

In addition to the requirements of clause 52.237-3, "Continuity of Services," the Contractor shall give support to and cooperate with any successor that may be designated prior to the expiration of this task order. Phase in assistance may be required during the final ninety (90) days of this task order. The incumbent Contractor shall comply in good faith with any successor Contractor to provide reasonable access to employees and employee records for recruitment efforts.

4.21.3 Contractor Data.

The Contractor shall make available to successor Contractor, copies of maintenance instructions, records, processes, etc. developed in the performance of this task order. The Contractor shall make available historical data developed and documented in the performance of this task order. The Contractor agrees to execute formal transfer of Government property, as applicable. Phase out assistance of this task order is considered within the scope of the task order with no adjustment to estimated costs.

4.22 Personal Services.

This order is for "non-personal services" as defined in FAR 37.101. It is, therefore, understood and agreed that the Contractor and/or the Contractor's employees and subcontractors: (1) shall perform the services specified herein as independent contractors, not as employees of the Government; (2) shall be responsible for their own management and administration of the work required and bear sole responsibility for complying with any and all technical, schedule, or financial requirements or constraints attendant to the performance of this contract; (3) shall be free from supervision or control by any Government employee with respect to the manner or method of performance of the services specified; but (4) shall, pursuant to the Government's right and obligation to inspect, accept, or reject the work, comply with such general direction of the Contracting Officer, or the duly authorized representative of the Contracting Officer, as is necessary to ensure accomplishment of the contract objectives.

4.22.1 Supervision of Contractor Personnel.

The Contractor is solely responsible for the control and supervision of Contractor personnel. This includes Contractor employee leave and timekeeping issues. The Contractor is responsible for properly training its employees before they commence work to recognize the scope of their duties. Contractor personnel must be qualified to perform the duties of their assigned labor classifications at the beginning of the task order.

Although the Department of Labor Service Contract Act Labor Classification descriptions may include references to supervision or supervisory responsibility, it is an overarching requirement of the contract that only Contractor employees shall supervise other Contractor employees. In no instance shall a Contractor employee supervise a Government employee nor shall any Government employee be a supervisor of a Contractor employee.

4.23 Acronym List.

ACOT	Advanced Common Torpedo
AP	Acquisition plan
AQL	Acceptable quality level
ASREQ	As required
ASROC	Anti-Submarine Rocket
BLS	Bureau of Labor Statistics
BOE	Basis of Estimate
BOM	Bill of materials
CA	Customer Advocate
CAC	Common Access Card
CAD	Computer aided design
CDD	Capability Development Document
CDR	Critical Design Review
CDRL	Contract Data Requirements List
CES	Custom engineered solutions
CI	Critical information
CLIN	Contract line item number
COMOPTEVFOR	Commander Operational Test and Evaluation Force
COR	Contracting Officer's Representative
COTS	Commercial-off-the-shelf
CPD	Capability Production Document
CUI	Controlled unclassified information
DAC	Days after contract start
DEMIL	Demilitarization
DLP	Depot Level Procedure
DOD	Department of Defense
DON	Department of the Navy
ERP	Enterprise Resource Planning
FAR	Federal Acquisition Regulation
FMS	Foreign military sales
FOUO	For official use only
FPGA	Field programmable gate array
FY	Fiscal year
GD&T	Geometric dimensioning and tolerancing
GFP	Government furnished property
HVAC	Heating, ventilation, and air conditioning
HWT	Heavyweight torpedo
IA	Information assurance
ID	Identification
IMA	Intermediate Maintenance Activity
IOSS	Interagency OPSEC Support Staff
IPT	Integrated product team
ISEA	In-Service Engineering Agent
LWT	Lightweight torpedo
M&IE	Meals and incidental expenses
MDA	Missile Defense Agency
MTV	Mobile Target Vehicle
NAVSEA	Naval Sea Systems Command
NAVSUP	Naval Supply Systems Command
NISPOM	National Industrial Security Program Operating Manual
NMCI	Navy Marine Corps Intranet

NRE	Non-recurring engineering
NUWC	Naval Undersea Warfare Center
ODC	Other direct cost
OPSEC	Operations Security
OSHA	Occupational Safety and Health Administration
PCB	Printed circuit board
PDR	Preliminary design review
PEP	Producibility Engineering Plan
PII	Personally identifiable information
PM	Project Manager
POP	Period of performance
PRR	Production readiness review
PSC	Product Service Code
PWS	Performance work statement
QAE	Quality Assurance Evaluator
QCP	Quality Control Program
SEP	Systems Engineering Plan
SLIN	Sub-line item number
SOC	Standard Occupational Classification
SOW	Statement of work
STIG	Security technical information guide
SWMS	Shop Workload Management System
T&E	Test and evaluation
TASS	Trusted Associate Sponsorship System
TDP	Technical documentation package
TEMP	Test and Evaluation Master Plan
TEMPALT	Temporary alteration
TI	Technical instruction
TPS	Test program set
TT&E	Test, training and evaluation
UCSD	Undersea and Combat Systems Depot (Code 31)
USW	Undersea warfare
UUT	Unit under test
UUV	Unmanned underwater [or undersea] vehicle
VLA	Vertical Launch Anti-Submarine Rocket
XTV	External Target Vehicle

5. Reporting Requirements.

The Contractor shall be required to submit the CDRLs identified in Section J. Table 5-1 provides a list of the CDRLs for this task order.

Table 5-1. ESS Management CDRL Matrix.

CDRL	Description	PWS Paragraphs(s)	Submission
A001	Management Plan	4.2, 4.2.2	30DAC; 15 days following a change requiring revision thereafter
A002	Performance and Cost Report/Weekly Expenditure Report	4.2.1.1, 4.8	30DAC; due by Thursday following the week for which the report is submitted thereafter
A003	Funds and Man-Hours Expenditure Report/Monthly Financial Report	4.2.1.2	30DAC; due by the 15th of each month following the month for which the report is submitted thereafter
A004	Contractor's Progress, Status and Management Report/Program Manager's Report	4.2.1.3, 4.7	30DAC; due by the 15th of each month following the month for which the report is submitted thereafter

A005	Report, Record of Meeting/Minutes /Meeting Minutes/Action Logs	4.2.1.4	ASREQ; meeting minutes due within 5 working days after the post-award meeting and 2 working days after each quarterly review meeting and monthly management meeting
A006	Presentation Material	4.2.1.4	ASREQ; for quarterly reviews, materials are due 14 days prior to the meeting; for monthly management meetings, materials are due 2 days prior to the meeting
A007	Government Property Inventory Report	4.17	90DAC; quarterly thereafter

(End of Performance Work Statement)